



**United States
Department of
Agriculture**

**Agricultural
Marketing
Service**

**Dairy
Division**

United States Standards for Grades of Instant Nonfat Dry Milk

Effective August 7, 1996

United States Standards for Instant Nonfat Dry Milk¹

Definitions

§ 58.2750 *Instant nonfat dry milk.*

(a) Instant nonfat dry milk is nonfat dry milk which has been produced in such a manner as to substantially improve its dispersing and reconstitution characteristics over that produced by the conventional processes. Instant nonfat dry milk covered by these standards shall not contain dry buttermilk, dry whey, or products other than nonfat dry milk, except that lactose may be added as a processing aid during instantizing. The instant nonfat dry milk shall not contain any added preservatives, neutralizing agent, or other chemical. If lactose is used, the amount of lactose shall be the minimum required to produce the desired effect, but in no case shall the amount exceed 2.0 percent of the weight of the nonfat dry milk. If instant nonfat dry milk is fortified with vitamin A, and the product is reconstituted in accordance with the label directions, each quart of the reconstituted product shall contain 2000 International Units thereof. If instant nonfat dry milk is fortified with vitamin D, and the product is reconstituted in accordance with the label directions, each quart of the reconstituted product shall contain 400 International Units thereof.

(b) "Nonfat dry milk" is the product obtained by the removal of only water from pasteurized skim milk. It contains not more than 5 percent by weight of moisture and not more than 1½ percent by weight of milkfat and it conforms to the applicable provisions of 21 CFR part 131, "Milk and Cream" as issued by the Food and Drug Administration. Nonfat dry milk shall not contain nor be derived from dry buttermilk, dry whey, or products other than skim milk, and shall not contain any added preservative, neutralizing agent, or other chemical.

U. S. Grade

§ 58.2751 *Nomenclature of the U.S. grade.*

The nomenclature of the U.S. grade is U.S. Extra.

¹Compliance with these standards does not excuse failure to comply with the provisions of the Federal Food, Drug and Cosmetic Act.

§ 58.2752 *Basis for determination of the U.S. grade.*

The U.S. grade of instant nonfat dry milk is determined on the basis of flavor, physical appearance, bacterial estimate on the basis of standard plate count and coliform count, milkfat content, moisture content, scorched particle content, solubility index, titratable acidity, and dispersibility.

§ 58.2753 *Specifications for the U.S. grade.*

(a) *U.S. Extra Grade.* U.S. Extra Grade instant nonfat dry milk shall conform to the following requirements (See Tables I, II, and III of this section):

(1) *Flavor.* Reconstituted instant nonfat dry milk shall possess a sweet, pleasing, and desirable flavor, but may possess the following flavors to a slight degree: Chalky, cooked, feed, or flat. See Table I of this section.

(2) *Physical appearance.* Instant nonfat dry milk shall possess a uniform white to light cream natural color. It shall be reasonably free-flowing and free from lumps except those that readily break up with very slight pressure. See Table II of this section.

(3) *Bacterial estimate.* Not more than 30,000 per gram standard plate count. See Table III of this section.

(4) *Coliform count.* Not more than 10 per gram. See Table III of this section.

(5) *Milkfat content.* Not more than 1.25 percent. See Table III of this section.

(6) *Moisture content.* Not more than 4.5 percent. See Table III of this section.

(7) *Scorched particle content.* Not more than 15.0 mg. See Table III of this section.

(8) *Solubility index.* Not more than 1.0 ml. See Table III of this section.

(9) *Titratable acidity.* Not more than 0.15 percent (lactic acid). See Table III of this section.

(10) *Dispersibility.* Not less than 85.0 percent. See Table III of this section.

Table I.--Classification of Flavor

Flavor Characteristics	U.S. extra grade
Chalky	Slight.
Cooked	Slight.
Feed	Slight.
Flat	Slight.

Table II.--Classification of Physical Appearance

Physical appearance characteristics	U.S. extra grade
Color	White to light cream.
Free flowing	Reasonably.
Lumpy	Very slight pressure.

Table III.--Classification According to Laboratory Analysis

Laboratory tests	U.S. extra grade
Bacterial estimate; Standard plate count; per gram (max)	30,000
Coliform count; per gram (max)	10
Milkfat content; percent (max)	1.25
Moisture content; percent (max)	4.5
Scorched particle content; mg (max)	15.0
Solubility index; ml (max)	1.0
Titrateable acidity (lactic acid); percent (max)	0.15
Dispersibility; percent (min)	85.0

§ 58.2754 *U.S. grade not assignable.*

Instant nonfat dry milk shall not be assigned the U.S. grade for one or more of the following reasons:

- (a) The instant nonfat dry milk fails to meet the requirements for U.S. Extra Grade.
- (b) The instant nonfat dry milk has a direct microscopic clump (DMC) count exceeding 40 million per gram.
- (c) The instant nonfat dry milk is produced in a plant that is rated ineligible for USDA grading service or is not USDA-approved.

§ 58.2756 *Test methods.*

All required tests shall be performed in accordance with DA Instruction No. 918-RL, "Instruction for Resident Grading Quality Control Service Programs and Laboratory Analysis," Dairy Grading Branch, Dairy Division, Agricultural Marketing Service, U.S. Department of Agriculture, Washington, DC 20090-6456; the latest revision of "Official Methods of Analysis of the Association of Official Analytical Chemists"; or the latest edition of "Standard Methods for the Examination of Dairy Products" available from the American Public Health Association, 1015 Fifteenth Street, NW., Washington, DC 20005.

Explanation of Terms

§ 58.2759 *Explanation of terms.*

(a) *With respect to flavor:*

- (1) *Slight.* Detected only upon critical examination.
- (2) *Chalky.* A tactual type of flavor lacking in characteristic milk flavor.
- (3) *Cooked.* Similar to a custard flavor and imparts a smooth aftertaste.
- (4) *Feed.* Feed flavors (such as alfalfa, sweet clover, silage, or similar feed) in milk carried through into the instant nonfat dry milk.
- (5) *Flat.* Insipid, practically devoid of any characteristic reconstituted instant nonfat dry milk flavor.

(b) *With respect to physical appearance:*

- (1) *Reasonably free-flowing.* Pours in a fairly constant, uniform stream from the open end of a tilted container or scoop.
- (2) *Very slight pressure.* Lumps fall apart with only light touch.
- (3) *Lumpy.* Loss of powdery consistency but not caked into hard chunks.
- (4) *Natural color.* A color that is white to light cream.